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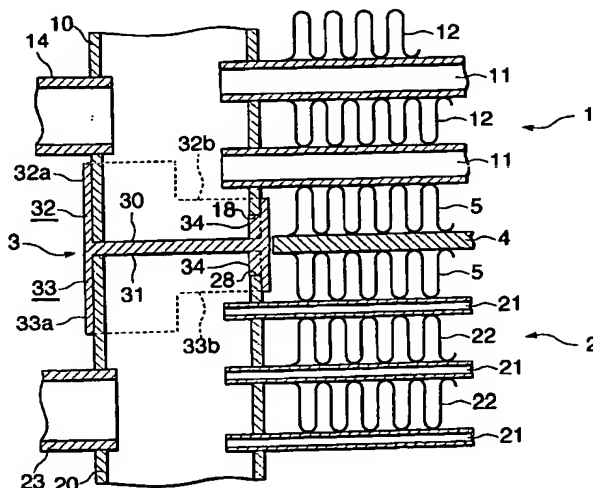
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- Published:
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: UNIT-TYPE HEAT EXCHANGER



(57) Abstract: A unit-type heat exchanger for use as a condenser in motor vehicle air conditioners and an oil cooler for various oils for use in motor vehicles. An oil cooler 1 and a condenser 2 are arranged one above the other and assembled into a unit. Each of these components 1, 2 has two pipelike headers 10, 20 arranged in parallel to each other at a spacing, and a plurality of parallel heat exchange tubes 11, 21 joined at opposite ends thereof to the two headers 10, 20. The adjacent oil cooler 1 and condenser 2 have ends thereof positioned in proximity to each other and connected to each other by connectors 3. Each of the connectors 3 is provided at opposite sides thereof with respective recessed portions 30, 31 for opposed ends of the headers 10, 20 to be fitted therein, and these header ends are fitted in the respective recessed portions 30, 31 and joined to the connector 3. The unit-type heat exchanger is adapted to prevent mixing of the fluids flowing inside the oil cooler 1 and the condenser 2, respectively.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/07638

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ F28F9/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ F28F9/26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Japanese Utility Model Gazette 1926-1996, Japanese Publication of Unexamined Utility Model Applications 1971-2003, Japanese Registered Utility Model Gazette 1994-2003, Japanese Gazette Containing the Utility Model 1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ECLA F28F9/26

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No.167202/1986 (Laid-open No.74970/1988) (SHOWA ALUMINUM CORPORATION) 1988.05.18 (Family:None)	1-8,10,11,1 5-17 9,12-14
Y A	Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No.92407/1989 (Laid-open No.38565/1991) (SHOWA ALUMINUM CORPORATION) 1991.04.15 (Family:None)	1-8,10,11,1 5-17 9,12-14
Y A Y A	JP 10-2693 A (ZEXEL VALEO CLIMATE CONTROL CORPORATION) 1998.01.06 (Family:None) EP 0789213 A (BEHR GMBH & CO.) 1997.08.13 & JP 9-152296 A	2-8,10,11,1 5-17 9,12-14 10,11,15-17 12-14



Further documents are listed in the continuation of Box C.



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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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